NEWSLINE

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From the Director's Office

Wayne Shotts

U.S. Department of Homeland Security has come far in a year

Having just passed the first anniversary of the Department of Homeland Security (DHS), it's a good time to take a look at what the new department and this Laboratory have been able to accomplish to make America better prepared to deal with the threat of terrorism.

One of the unique features of DHS is its Science and Technology directorate. When Congress formed the new department, it recognized that the scientific expertise of the nation could be brought to bear to protect the country with new and existing technologies. This year alone, DHS will invest more than a billion dollars in science and technology, much of it through the Science and Technology directorate, to help the nation anticipate, detect, respond to, and recover from terrorist threats.

Lawrence Livermore has been a key participant in this national endeavor. In December 2002, we formed the Homeland Security Organization (HSO) to provide comprehen-

See **DIRECTOR'S OFFICE,** *page 5*

Women's hall of fame taps Jernigan

By Anne M. Stark
NEWSLINE STAFF WRITER

As the oldest of four children of a single mother, Tammy Jernigan didn't let anything stand in the way of pursuing her dreams — even when that dream was to become an astronaut. Her mother always told her: "There's nothing you can't do if you just put your mind to it." So, Jernigan set her goals high and achieved them.

Most recently, Jernigan was named the 2004 Outstanding Woman of the Year in the science category into the Alameda County Women's Hall of Fame. She will be honored Saturday at the Eleventh Annual Women's Hall of Fame awards ceremony at the Oakland City Center Marriott.

Tammy Jernigan

"I'm honored and pleased to receive this award especially because it is bestowed on the community where I live and work," Jernigan said of the honor. "I hope to serve as a role model to all young girls helping them to understand that women can earn respect in the fields of science and math."

Jernigan joined LLNL in October 2001 as assistant associate director for special projects for the Physics and Advanced Technologies Directorate where she was in charge of strategic

See **JERNIGAN,** *page 4*

Innovative future explosive vessel developed

By Don Johnston
NEWSLINE STAFF WRITER

Laboratory scientists and engineers have successfully tested a prototype composite containment vessel for explosive experiments that may become vital to the future of the National Nuclear Security Administration's effort to ensure the safety and reliability of the nation's nuclear stockpile without nuclear testing.

The new design vessel is built to accommodate the more stringent containment standards that are likely to be in place for all manner of explosives tests in the future, especially those involving nuclear material.

The half-scale prototype vessel, roughly the size of a large medicine ball, contained an internal blast from an 18-pound soccer-ball sized sphere of C4 explosive in a test at Site 300's Bldg. 850 firing table.

"Development of a versatile vessel that allows X-ray or proton radiographic imaging from just about any

See **VESSEL,** *page 8*

Guide star sheds new light on stellar origins

By Anne M. Stark
NEWSLINE STAFF WRITER

For the first time, scientists from UC Berkeley and the Lab, in conjunction with astrophysicists from the California Institute of Technology, UC Santa Cruz, the National Science Foundation's Center for Adaptive Optics and UC's Lick Observatory, have observed that distant larger stars formed in flattened accretion disks just like the sun.

Using the laser guide star adaptive optics system created by LLNL scientists, the team was able to determine that some of the relatively young yet massive Herbig Ae/Be stars contain biconical nebulae, polarized jets and circumstellar disks. Less massive stars including the sun are believed to be formed in a swirling spherical cloud that collapses into a disk.

The astronomers observed a strongly polarized, biconical nebula 10 arcseconds in diameter around the star LkHa 198 and a polarized jet-like feature in LkHa 198-IR. The star LkHa 233 featured a narrow, unpolarized dark lane similar to an optically thick circumstellar disk. The research appears in the Feb. 27 edition of the journal *Science*.

See **STARS,** *page 8*

The laser guide star at the Lick Observatory is used to observe stellar formations.

CGSR's Alberto mourned by friends and colleagues after fatal motorcycle crash

Tami Alberto

Tami Alberto, an administrative assistant at the Center for Global Security Research (CGSR), was mourned by family, friends and colleagues this week. Alberto died Saturday in a motorcycle accident on Interstate 680.

A memorial service for Alberto, a Pleasanton resident, is scheduled for Friday, March 12, at 3 p.m. at the Graham-Hitch Mortuary, 4167 First Street, Pleasanton.

Colleagues in CGSR are establishing an education trust fund for her two sons; Giordan Tobia, 10, and Nick Tobia, 6. Additional information will be

See **ALBERTO,** *page 8*

LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Saturday **6**

There will be a **scheduled power outage** from 6 a.m. today to 3 p.m. Sunday. Bldg. 451 and Trailers 4525 and 4576 will be affected. Air conditioning, heating and elevators will also be affected. For more information, contact Mark Cardoza, 3-0490.

Tuesday **9**

A **Fidelity retirement counselor** will be available today and Wednesday to assist with: assessing the current state of retirement accounts, learning how to plan asset allocation and diversify investments within retirement accounts, as well as identifying income strategies when planning retirement. Fidelity Mutual Funds are available to UC's workplace retirement plan participants in addition to the UC-managed investment pools. If you would like to set up a one-on-one consultation, call 800-642-7131. When calling be sure to specify that you are an LLNL employee.

Wednesday **10**

A representative from the **Social Security Administration** will be at the Lab today from noon - 1 p.m. in the Bldg. 543 auditorium to discuss the many benefits that are available to those covered by Social Security. This presentation will provide participants with the opportunity to ask questions of experts who are familiar with the complexities surrounding this very important benefit. For additional information, contact the Benefits Office, 2-9957.

Friday **12**

A representative from **California Casualty** Insurance will be in the Benefits Office today. Appointments are required and may be scheduled by calling 2-9955. California Casualty offers individual rates to Lab employees by payroll deduction for auto and homeowner/renter insurance. As with any employee-paid insurance coverage, employees are encouraged to comparison shop.

UP & COMING

The eighth annual **Tri-Valley Science and Engineering Fair** needs enthusiastic and energetic scientists and engineers to help judge student projects on Thursday, March 25. Judges are needed from 7:30 a.m. to 1:30 p.m. at the San Ramon Valley Conference Center in San Ramon. To volunteer, contact Connie Ruvalcaba-Olson, 4-4640, or ruvalcabaolson1@llnl.gov.

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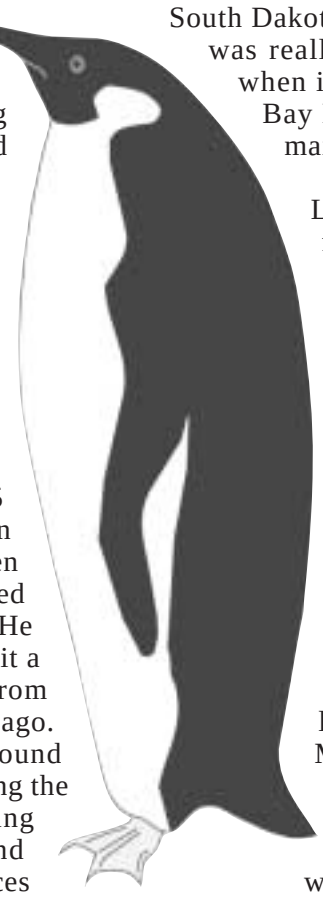
The **Valley Concert Chorale** will perform Johannes Brahms' "Requiem" at 8 p.m. on Saturday, March 13, at the First Presbyterian Church, 4th and L Streets, Livermore; and at 7 p.m. Sunday, March 21, at Saint Augustine's Church, 3999 Bernal Avenue, Pleasanton. Tickets are $18 for adults and $15 for seniors. To purchase tickets, call (925) 866-4003 or send e-mail to info@valleyconcertchorale.org.

RETIREE'S CORNER

Far-flung reports from roaming retirees

Larry Moon (Director's Office, 2001) recently took a 12-day cruise from the tip of South America to the Antarctic Peninsula. They saw six kinds of whales, four kinds of seals, four kinds of penguins, and many kinds of birds. They spent hours watching the penguins; swimming through the water, cleaning and preening themselves, stealing rocks, protecting their chicks from the Skuas, walking and tobagganing up and down all over the place, and squabbling endlessly. They made nine landings, one on the continent itself (in contrast to the islands) and walked on sea ice south of the Antarctic Circle. They were able to paddle kayaks in sheltered locations three times. All in all, it was the thrill of a lifetime.



Lee Dibley (Mechanical Engineering, 1990) just finished restoring a 1935 tractor purchased by his neighbor in Southeastern Minnesota (Caledonia) when he was in the first grade. Lee liked the red wheels and fell in love with the tractor. He first drove it when he was 14 and drove it a lot in the '40's. He bought the tractor from the original owner's son about six years ago. After building a shop with a 2,000-pound hoist, he put in about 1,680 hours restoring the tractor. It was a fun project and a learning experience getting the sandblasting and painting done. He was able to find sources for the new/used parts, such as a radiator core, manifold and oil filters, from several antique tractor magazines advert .

He and his wife, Della, are busy in Spearfish, South Dakota, where they now live. Della coordinates all the volunteers who work at the local museum and is state president of Church Women United. Lee does Meals-On-Wheels at least once a week and has been active with the passion play for the past eight years. He is also president of their road district. They pay an assessment which goes toward roads, maintenance and snow plowing. Retiring in South Dakota was a good move, a fact that was really accentuated last September when it took three hours to cross the Bay Bridge, due to an accident. (e-mail: leedella@rushmore.com).

Because the Livermore Library is moving to its new facility, the LLNL Retirees Travel Slide Group has changed locations for March through June. The March 23, 2 p.m. meeting is in the Livermore City Council Chambers, 3575 Pacific Avenue. This month's show is entitled "Trip to Southeast Asia with Home Stay in Hanoi (video)" by Margaret and Jim Tracy. The travel groups meets on the fourth Tuesday at 2 p.m. January through June.

The next Retiree luncheon will be Wednesday, March 17, at Cattleman's' restaurant. The speaker will be Page Stoutland from LLNL's Homeland Security Program, who will give us an overview of several of the projects. To make reservations, go to the Retiree Organization Web page: www.llnlretirees.org.

Please send any news or input to Jane or Gus Olson. E-Mail: AugustO@aol.com or JaneRubert@aol.com, phone: 443-4349, or snail mail address: 493 Joyce Street, Livermore, CA 94550.

'Fun with Science' program seeks volunteers

Are you a Lab employee who would like to share your love of science with local students? The Lab's Science & Technology Education Program (STEP) and the Public Affairs Office are looking for volunteers to present "Fun with Science," an education outreach program where Lab scientists and technologists demonstrate and explain various physical science concepts to students in grades K-8.

STEP needs presenters who can travel to elementary and middle schools in the Tri-Valley, Central Valley, Bay Area and selected foothill locations within one day round trips. Public Affairs needs presenters for its 4th and 5th grade school tour program, held at the Discovery Center (formerly the Visitors Center) where "Fun with Science" is a portion of the visit. All volunteer presenters are offered training on the various demonstrations and equipment used in the program, as well as suggested techniques to show that science is fun.

If you'd like to learn more about "Fun with Science" and how you can help, please attend a lunch meeting (pizza provided)on Tuesday, March 9, from noon to 1 p.m. at the Edward Teller Education Center, (ETEC) Trailer 6675, near the East Gate. A short overview about "Fun with Science" will be given. Current presenters will be on hand to talk about their experiences and answer questions. If you plan to attend the meeting, call Kerwin Falls, 2-6098, or Linda Lucchetti, 2-5815. For more information about "Fun with Science," go to the Web at http://ep.llnl.gov/fws/.

Newsline

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AROUND THE LAB

Laboratory Women's Association has come a long way

By Linda Luccchetti
NEWSLINE STAFF WRITER

On Feb. 8, 1971, three Lab employees, Joan Feeney, Jane Mathis and Anita Riley wrote to then LLNL Director Michael May stating that a group of women employees intended to form a Livermore branch of LRL Women's Association in Berkeley.

On March 3, 1971, May replied "I welcome your interest and concern for promoting equal opportunity for women at the Laboratory." With these supportive words, Lawrence Livermore Laboratory Women's Association (LLLWA) was launched.

LLLWA in action

LLLWA goals are to:

- Celebrate successes and achievements.
- Provide collaborative solutions to enhance the work life environment.
- Provide funding and access for educational scholarships.
- Provide sources of information and channels of communication to facilitate diversity in the workplace.
- Provide educational reources to increase knowledge and expand career opportunities.

The first meeting of the new group addressed the topic of affirmative action for women and University of California policy. One month later, on Oct. 27, 1971, the Women's Association at LLNL was chartered "to function as an educational, discussion, and action group concerned primarily with the problems that women face in employment."

Since then, the LLLWA has emerged as a multi-faceted resource for improving the quality of women's work life by providing encouragement and support for professional growth through new opportunities, education, information exchange, and community outreach.

Due to past efforts of the LLLWA board and committees, LLNL supports such programs as the Childcare Center, Expanding Your Horizons in March and science conferences, Women's History Month and various community outreach activities. In addition, the association offers speaker programs targeted to the interests and concerns of women.

Perhaps one of the finest accomplishments and a cornerstone of the association is the scholarship program that provides financial awards to Laboratory employees to help in their pursuit of education. Over the past two decades, 198 scholarships have been awarded, totaling more than $65,000.

Over the years, the Women's Association has grown in membership and scope, with members representing scientific, administrative, technical, professional, and management fields.

March 9
International Women's Day Potluck, Bldg. 5475, room 1145, noon.
RSVP or for more info contact, Cheryl Krossa, 2-9333, or Barbara Gonzales, 4-3274

March 11
Women Today, A Cross Cultural Perspective. Bldg. 543 auditorium, noon.

March 16
Women Today, A Cross Cultural Perspective No. 2. Bldg. 543 auditorium, noon.
These events will feature four speakers representing different countries and cultures from a woman's perspective. RSVP or for more info, contact Dawn Abu Jassar, 3-6034.

March 22
Keynote speaker: Christina Maslach, UC Berkeley vice provost, on "Preventing Burnout and Building Engagement." Bldg. 543 auditorium, noon. *For more info, contact Michele Cardenas, 3-2796.*

LLLWA committees

The following committees exist to accomplish the association's goals: Archives, Communications, Distinguished Guest, Annual Social, Membership, Nominating, Scholarship, Women's History Month, Women in Science and Engineering, Health Transitions for Women

Lawrence Livermore Laboratory Women's Association founders and presidents

1970	Joan Feeney, Jane Mathis, Anita Riley	**1975**	Cecilia Larsen	**1983**	Ann Silverstein Parker	**1990**	Celeste Matarazzo	**1998**	Evi Dube
1971	Eome Otsuki	**1976**	Cecilia Larsen	**1984**	Candy Robinson	**1991**	Jill Ingledue	**1999**	Linda Lucchetti
1972	Wilma McGurn	**1977**	Ruth Miller-Will	**1985**	Vanessa Morris	**1992**	Luisa Hansen	**2000**	Tristan Pico
1973	Dona Fontes (deceased 1986)	**1978**	Ruth Miller-Will	**1986**	Anna Lim	**1993**	Pat Chance	**2001**	Carla Lewis
1974	Helen Sullivan (deceased 1986)	**1979**	Yolanda George	**1987**	Mary Singleton	**1994**	Lori (Jensen) Turpin	**2002**	Lara Daily
		1980	Judy Manning	**1988**	Rose Newman	**1995**	Barbara Gomez	**2003**	Marina Gonzalez
		1981	June Stuart	**1989**	Margaret Barbee	**1996**	Katharine Fritz	**2004**	Chelle Clements
		1982	June Stuart			**1997**	Lisa (Swayne) Rood		

BRIEFLY

Veterans Association plans panel

The Lawrence Livermore Laboratory Armed Forces Veterans Association (LLLAFVA) wants to hear from veterans who have served during the past 18 months in Iraq, Afghanistan, or Bosnia, and who would be interested in being part of a panel discussion in recognition of Memorial Day,

The panel "A Day in the Life of a Deployed Veteran" hopes to feature at least one representative from each service who could give a short presentation about daily life during deployment. The LLLAFVA will assist with the presentations and scanning photos. For more information, contact Chelle Clements, 3-8134.

Recent worms, viruses

Lab Windows PC computers continue to be among those under attack by worms and viruses, according to Lab Computer Security. In one variation, hackers are sending e-mails with a "spoof" that shows the message coming from within "llnl.gov", even though it originates from off site.

Recently viruses from the "Beagle" family have included an attached encrypted "ZIP" file that can't be detected by scanning software. The body of the e-mail message contains a password to decrypt and extract the file — which activates the virus. If you receive such a message, do not attempt to decrypt or extract the attached zip file. Delete the message and the attachment file immediately.

Until a suitable remedy is developed, Computer Security will intercept e-mail messages with ".ZIP" attachments and block the attachment from entering the Lab. This may interfere with the normal conduct of business, but because of the severity of the consequences, blocking is a necessary measure at this time.

An insider's view of Cold War

Tom Reed, former Secretary of the Air Force and earlier an A Division physicist, will deliver an insider's view of the Cold War on Tuesday, March 16, at 3:30 p.m. in the Bldg. 123 auditorium. All employees and retirees are invited to hear Reed's talk, sponsored by the Laboratory History Project, on the nuclear one-upmanship between the United States and Soviets that dominated the fifties to the nineties.

Reed was a prominent player in the Cold War — as Secretary of the Air Force, as director of the National Reconnaissance office, and as a special assistant to President Reagan for National Security Policy. He has compiled his perspectives and personal history in a new book, "At the Abyss," which will be released by Random House on March 9, just prior to his talk at the Laboratory. The introduction to the book is by former President George H. W. Bush, and the volume is based on archival research as well as interviews with major Cold War players — from U.S. Presidents to Soviet generals, from policy makers to nuclear scientists.

The Time Zone will have discounted copies of the book for purchase ahead of the talk with an expected arrival date on March 12. Call the Time Zone, 2-9035, to ensure the books are available. Reed will be at the store earlier during the day on March 16 to sign copies.

JERNIGAN

Continued from page 1

planning and program review. She currently serves as PAT principal deputy associate director and is responsible for the day-to-day operations of the directorate. She also plays a crucial role in long-term planning, program evaluation and review and advising the associate director on new directions and programs.

In addition, Jernigan serves on the Lab's Laboratory Directed Research and Development — Strategic Initiative committee and is also a member of the National Research Council's Space Study Board, which provides guidance on NASA's future path.

The Alameda County Health Care Foundation, the Commission on the Status of Women and the Alameda County Board of Supervisors established a permanent Women's Hall of Fame in Alameda County in October 1993. It was established to recognize outstanding women in Alameda County for their achievements and contributions to the county and its citizens. Last year, LLNL scientists Claire Max and Ellen Raber earned entry into the hall of fame in the categories of science and environment, respectively.

Prior to coming to Livermore, Jernigan started working for NASA as a 19-year-old physics undergraduate at Stanford University. She worked part time for NASA Ames on the Galileo project, which launched a probe to explore Jupiter and its moons. After earning her bachelor's degree in physics in 1981, Jernigan went on to earn a master's in engineering science. While working on her Ph.D. in astrophysics at UC Berkeley, Jernigan was selected as an astronaut candidate by NASA in June 1985 and became an astronaut in July 1986. She completed her Ph.D. in space physics at Rice University in 1988.

Jernigan is a veteran of five Space Shuttle missions in which she supervised the pre-flight and in-flight execution of critical activities aboard STS-40, 52, 67, 80, and 96. During these flights, she served as a mission specialist on the first dedicated life sciences mission (STS-40) and payload commander (STS-67). During STS-67's 16-day mission, the crew conducted continuous ultraviolet observations of a variety of stars, planets and distant galaxies. By participating in this "astronomical observatory in space," Jernigan was able to return to Earth and help the scientific community better design instruments so they could get the best results from space-based observations of stars and planets.

During her last flight in 1999, the crew performed the first docking to the International Space Station, where Jernigan performed an eight-hour space walk to attach equipment to the exterior of the station. In addition to her space flight experience, Jernigan has served as deputy chief of the astronaut office, assisting with the management of more than 180 military and civilian astronauts and support personnel. As deputy for the space station program, she developed and advocated astronaut office positions on the design and operation of the space station.

Throughout her career, Jernigan has strongly supported educational outreach through her many motivational talks and presentations about science and technology. Last year, Jernigan showcased the Lab's medical technologies capabilities by giving a presentation to Department of Energy Secretary Spencer Abraham, National Nuclear Security Administrator Linton Brooks and spouses of the President's Cabinet members.

In addition, she visits schools regularly to discuss her role in the space program, often participates in the annual Expanding Your Horizons conference to encourage girls in grades 6-12 to delve into math and science, participates in the Laboratory's public speaker series, speaks annually to military cadets enrolled in Laboratory summer internships, and has been the keynote speaker at a number of Laboratory events including Science Day. Jernigan also contributed to the Blackhawk Museum's "Women of Our Time" panel discussion as one of six panelists speaking before intermediate and high school students. The discussion was in association with the Smithsonian Institution's "Women of Our Time: 20th Century Photographs" from the National Portrait Gallery exhibit.

Jernigan is a member of the American Astronomical Association; the American Physical Society; and a lifetime member of the Girl Scouts and the United States Volleyball Association. Her awards include: the Distinguished Service Medal (2000, 1997); Lowell Thomas Award, Explorer's Club (2000); Group Achievement Award — EVA Development Test Team (1997); Federation Aeronautique Internationale Vladimir Komorov Diploma (1997, 1996); Outstanding Leadership Medal (1996); Outstanding Performance Award (1993); Exceptional Service Medal (1993); Laurels Award, Aviation Week (1991); NASA Space Flight Medal (2000, 1996, 1995, 1992, 1991).

Jernigan lives in Pleasanton with her husband Jeffrey Wisoff, also a former astronaut now working at the Lab, and their energetic toddler son, Jeffrey. She and Wisoff consider parenthood to be the "greatest joy of their life."

Technical Meeting Calendar

Friday 5

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS
"Toward Understanding the Sun's Magnetic Fields and their Effects," by Alan Title, Stanford-Lockheed Institute for Space Research. Noon, Bldg. 319, room 205. Contact: Wil van Breugel, 2-7195, or Sharon Taberna, 3-6290.

BIOSECURITY & NANOSCIENCES LABORATORY
"High Z-Resolution Microscopy of Membrane Interfaces," by Caroline Ajo-Franklin, grad student, Stanford University. 2 p.m., Bldg. 151, room 1209 (Stevenson Room). Foreign nationals may attend if appropriate security plan is on file, which includes Bldg. 151. Contact: Katie Thomas, 2-7903.

CHEMICAL BIOLOGY & NUCLEAR SCIENCE DIVISION / CHEMISTRY & MATERIALS SCIENCE DIRECTORATE
"The Danish Preparedness System Against Biological Terrorism ," by Karin Grenlund Jakobsen, National Centre for Biological Defense, Statens Serum Institut. 1:30 p.m., Bldg. 155 auditorium. Foreign nationals may attend if appropriate security plan is on file, which includes Bldg. 155). Contact: David Fergenson, 2-5530, or Eryn Davis, 2-0475.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH
"Middleware Support for Data Ensemble Analysis," by Joel Saltz, Ohio State University. 10:30 a.m., Bldg. 451, room 1025 (property protection area). For more information, go to http://www.llnl.gov/casccalendar.shtml. Contact: Bill Arrighi, (CADSE) 4-3557, or Leslie Bills, 3-8927.

ICF/HEDES
"Controlling Phase Stability and Mechanical Properties In Nanoscale Metal-Oxide Systems," by interviewee Bradley Kirsch, UCLA Department of Chemistry and Biochemistry. 10:30 a.m., Bldg. 219, conference room 238. Contact: Anika Rodda, 2-6377.

Monday 8

BIOSECURITY AND NANOSCIENCES LABORATORY SEMINAR
"Fast Data Acquisition for Time-of-Flight Mass Spectrometry" by Marc Gonin, Tofwerk AG, Switzerland. 2 p.m., Bldg. 151, room 1209 Stevenson Room (P-cleared). Contact: Jim De Yoreo, 3-4240, or Brynn Bollinger, 2-6637.

CHEMISTRY & MATERIALS SCIENCE MATERIALS SCIENCE AND TECHNOLOGY DIVISION
"TEM Investigations of Materials Issues in Advanced Interconnect Structures," by applicant Mark J. Williamson, LBL. 10 a.m., Bldg. 235, Gold Room. Contact: Wayne King, 3-6547, or Rebecca Browning, 2-5500.

Tuesday 9

INTEGRATED COMPUTING & COMMUNICATIONS DEPARTMENT
"DDT: The Distributed Debugging Tool," by Streamline Conputing Ltd. 11 a.m., Bldg. 451, White Room (room 1025). Contact: Jolene Gilbert, Gilbert20@llnl.gov, or 3-1755.

LC USER MEETING
"3-D simulation of the Baneberry Nuclear Event," by Tarabay Antoun, Energy and Environment Directorate, Earth Science Division. 10 a.m., Bldg. 451, room 1025 (White Room). For more information see, http://www.llnl.gov/asci/news/baneberry.pdf. Contact: Jean Shuler, 3-1909.

Wednesday 10

CHEMICAL BIOLOGY & NUCLEAR SCIENCE DIVISION
"Recent Heavy Element Experiments with Ca-48 Projectiles Including the Discovery of Elements 115 and 113," by Joshua Patin, CBN Division. 10:30 a.m., Bldg.155 auditorium (property protection area). Contact: Cheryl Moody-Bartel, 4-4144, moodybartel1@llnl.gov.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH
"Actor-oriented Metaprogramming," by Stephen Neuendorffer, UC Berkeley. 9 a.m., Bldg. 451, room 1025 (property protection area). For more information, go to http://www.llnl.gov/casc/calendar.shtml. Contact: Tom Epperly, (CASC) 4-3159, or Leslie Bills, 3-8927.

Thursday 11

PHYSICS & ADVANCED TECHNOLOGIES/N DIVISION
"Elements of Diagrammatic Programming, a Systems Analysis Orientation," by Brian Balke, EVP, Technology Division (Physical Modeling and Software Design). 10:30 a.m., Bldg. 2128, room 1000 (badge required). Contact: Marshall Mugge, 3-1765, or Pat Smith, 2-0920.

Friday 12

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS
"The OH Molecule as a Probe of Galaxy Evolution and Cosmology," by Jeremy Darling, Carnegie Observatories, Carnegie Institution of Washington. Noon, Bldg. 319, room 205. Contact: Wil van Breugel, 2-7195, or Josie Morgado, 2-7181.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

Send your input to tmc-submit@llnl.gov. For information on electronic mail or the Technical Meeting Calendar list, see the auto registration service on the Web.

Anomalous stardust provides clues to origins of life

By Anne M. Stark
NEWSLINE STAFF WRITER

Laboratory and Washington University scientists have seen carbon and nitrogen anomalies on a particle of interplanetary dust that provides a clue as to how interstellar organic matter was incorporated into the solar system.

Interplanetary dust particles (IDPs) gathered from the Earth's stratosphere are complex collections of primitive solar system material and carry various isotopic anomalies.

Using an ion microprobe that allows isotopic imaging at a scale of 100 nanometers, the astrophysicists conducted simultaneous carbon and nitrogen isotopic imaging measurements of the IDP, nicknamed Benavente. They noticed that the isotope Carbon 13 decreased while nitrogen 15 increased in Benavente.

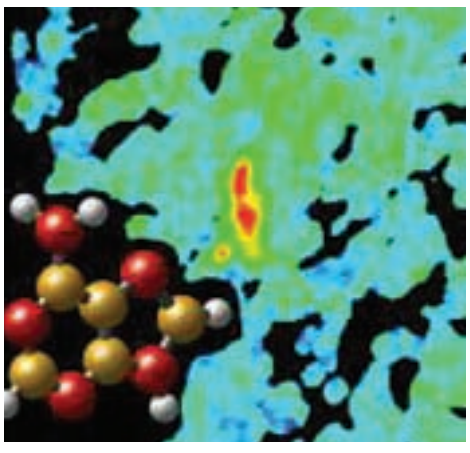
The results appear in the February 27 issue of the journal *Science*.

Interstellar molecular clouds are the principal formation sites of organic matter in the Milky Way.

A variety of simple molecules are produced in dense cold clouds. At such low temperatures, where the difference in chemical binding energy exceeds thermal energy, mass fractionation produces molecules with isotopic ratios that can be very different from molecules found on Earth.

These anomalies may provide a fingerprint for how abiotic interstellar organic matter was incorporated into the solar system.

The authors concluded that the observation of correlated carbon and nitrogen anomalies establishes that IDPs contain heteroatomic organic compounds of presolar interstellar origins that are more complex than the simple compounds implied by earlier measurements.



Nucleus of comet Wild-2 observed by STARDUST spacecraft Jan. 2, 2004.

During the prebiotic period, Earth may have accreted as much as a centimeter of abiotic carbonaceous matter every million years, much of it settling to the surface within small, high-surface-area IDPs.

"This constant flux of particulate organic matter continues to be delivered to the surface of terrestrial planets today and includes hetero-atomic interstellar molecules such as those found in Benavente," said John Bradley, director of Livermore's Institute for Geophysics and Planetary Physics and one of the authors of the paper.

"It is not unreasonable to speculate that heteroatomic interstellar molecular matter may be relevant to the origins of life on earth"

Other Livermore authors include Zurong Dai, Sasa Bajt and Giles Graham.

DIRECTOR'S OFFICE

Continued from page 1

sive solutions integrating threat, vulnerability and tradeoff analyses, advanced technologies, field-demonstrated prototypes, and operational capabilities to assist federal, state, local and private entities in defending against terrorism. Our homeland security work has grown significantly since HSO was formed, and staffing this coming year for the Laboratory's homeland-security-related activities will likely approach 200 employees.

We assisted DHS and its Science and Technology directorate in many efforts over the past year. For example, we played a key role in the initial rapid standup of the BioWatch system in numerous cities across the country. Most of the DNA signatures used by BioWatch to detect pathogens were developed at Livermore, with the resulting assays validated by the Centers for Disease Control (CDC). We continue to provide scientific and technical support to the core BioWatch team at DHS, the CDC, the Environmental Protection Agency, and at the local level. In a related biodefense effort, we helped the U.S. Department of Agriculture, the California State Veterinarian, and the California State Diagnostics Laboratory at UC Davis deal with three animal disease outbreaks, developing assays for rapid identification and providing operational assistance.

By partnering with industry and first responders, we are fast-tracking the demonstration and deployment of new technologies and systems to counter nuclear, biological and chemical threats. One such technology is RadScout, which was shown to Secretary Tom Ridge when he visited the Laboratory in July 2003. This portable nuclear detection and identification system developed for first responders and inspection personnel was licensed this year to ORTEC Products (Oak Ridge, Tenn.) for commercialization.

We are contributing to DHS efforts to improve the security of our nation's borders, ports and transportation systems. Laboratory researchers are using conflict simulation models in their work with the U.S. Border Patrol to identify opportunities to use technology to improve agent effectiveness and border security. We are also assisting on the US-VISIT program, providing expertise in systems analysis. Laboratory scientists are working with the Port of Oakland and other major ports to develop radiation detection systems for screening cargo containers. Livermore researchers are also providing U.S. Customs, U.S. Coast Guard, and other first responders with expert advice to resolve radiation detector alarms.

We are making important contributions to emergency planning and response as well, notably through the National Atmospheric Release Advisory Center (NARAC) and the Local Integration of NARAC with Cities (LINC) program. To date, LINC has been set up in five cities (Seattle, New York, Fort Worth, Albuquerque, and Cincinnati) to provide local emergency response personnel with direct access to NARAC plume models and hazard predictions. NARAC was called into action for a number of incidents and exercises this past year, including the Staten Island fuel barge fire (February 2003) and the TOPOFF 2 drill (May 2003).

The San Francisco Bay Area, with its numerous universities, high-tech industries, R&D institutions, transportation systems, and national icons, is well positioned to be a focal point for homeland security efforts and a leader in homeland security R&D for the entire country. To this end, Lawrence Livermore and Sandia-California are working with the Bay Area Science and Innovation Consortium (BASIC) to ensure that the benefits of our laboratories' investment enhance the economic vitality of the region.

These accomplishments are highlights of our integrated effort in homeland security. HSO's programs address the various phases of the problem—from indications and warning (intelligence analysis and infrastructure protection), to protection and detection (border and transportation security), to response and recovery (emergency preparedness and response). Underlying these efforts are programs in chemical and biological countermeasures and nuclear and radiological countermeasures. A program in homeland security systems analysis integrates the other efforts and provides guidance as to where technology can be most effective.

DHS and its Science and Technology directorate are working to utilize the full strength of the nation's "scientific brain trust" to protect America and its citizens. As an open society, America cannot expect a future free from the threat of terrorism. But at Lawrence Livermore, with the help of the National Nuclear Security Administration and our partners, we're working to ensure that homeland security professionals have the technologies, tools, training and information they need to do their jobs and do them well.

Engineering the future

ANNE STARK/NEWSLINE

At left, Willy Moss of the Energy and Environment Directorate shows students the properties of liqud nitrogen during Engineering Day, held last week. Above, Kathy Fritz of Engineering discusses how a a remote controlled Lego car operates. At right, students use a remote control to operte a robotic arm. More than 600 elementary school students attended Engineering Day, held outside and in the Bldg. 123 auditorium.

Classified ads

See complete classified ad listings at https://www-ais.llnl.gov/newsline/ads/

Automobiles

1993 - VW Corrado SLC VR6 SuperCharged, metallic green, 5 spd manual, A/C, ABS, many extras 45K miles on new engine, $7000 OBO. 925-548-4420

1993 - Ply Voyager SE Sport Wagon, 120K mi, good cond, $3400 obo 925-449-6811

1994 - Honda Civic EX, white, 4 door, new automatic transmission, AC, Moonroof, great condition, 136k miles. $4100 or best offer. 925-449-0947

1988 - VW Fox. 4 door. New tires and struts. Clean, cheap, economical, disposable commuter car. $950 OBO 209-824-2177

1995 - GMC SAFARI AWD SLT Package, loaded,very clean, all options, great for skiing, 137k miles. $4500./offer 209-599-4644

1972 - A 1972 Cadillac Eldorado collector car less than 3000 on overhauled ENG. 9000.00 OBO. 925-447-5547

2004 - VW Beetle GLS, convertible, Harvest Moon color, 3,000 miles, excellent condition, $24,000.00 209-839-0872

1986 - Honda CRX 5-sp, new clutch, recent major electrical tune-up & battery $1200 209-957-3289

1991 - Hyundai Scoupe, excellent condition, fairly new tires, and a CD player. Great gas milage, ready for commuting. $850 925-634-2104

1997 - Honda Civic DX 4 door sedan. Automatic, AM/FM radio, A/C, 141k miles. $4,000 obo. 209-825-6101

1999 - Ford Expedition, Eddie Bauer model, leather interior, all extras. Excellent condition 33k engine miles, $16800 925-443-6149

1984 - BMW 4 Door. Rebuilt Motor that needs rear brakes, alternator and transmission. Its not driveable. The drive in the tranny is out. $100.00 takes it. 209-579-2129

1995 - Jeep Wrangler 72,000 miles. 5 speed manual trans, 2.3 liter/4 cylinder, black w/grey interior. Original owner. Runs great! $6500 OBO. 925-516-1501

1996 - Taurus, GL sedan, 95K miles, good cond., $2850. 925-449-6399

1992 - Cadilac Seville 126000 miles, leather,ps,pb,nice car, good driver 20mpg. $3,500 obo 209-835-2917

2000 - Ford Taurus SE,57K, Clean, fully loaded, keyless entry, new Michelin tires. Moving, must sell. Cell phone 510-329-8819 925-368-0678

1967 - MGB-GT runs but needs TLC $1500/BO 925-449-5018

1988 - Jeep Cherokee - Pioneer package, tan color, 4.0L engine, 2WD, 155 K miles, stereo, a/c, very good condition. $2000. 415-648-4802

1989 - Ford Mustang LX 5.0 Liter V8, AT, PS, PW, PL, AC, tilt, cruise, alloys, 10-CD changer, $2500/OBO 408-241-2203

1997 - White Chrysler Sebring conv. $6875. Excellent condition. V6 2.5 L, 66K mi, AC, muti-disc CD, air bags, power everything. Call 408-269-2930 or 925-449-4310

Automobile Accessories

18X8.5, OZ Volcano Wheels, Yokahama Parada tires, 9.5/10 condition, 5 star pattern, Fits most euro including VW Jetta, GTI, and Passat. $1200.00 OBO 925-548-4420

For Chevy 4x4: 4 33 12.5 15 Radial pathmaker tires on Eagle alloy rims $500 offer 4 30 11.5 15 super swampers on black steel rims $ 150 offer 209-368-4286

Tacoma white snug top campershell bedliner and toolbox 96 and up selling for $ 500 209-537-1734

Volvo parts! Bo$ch alternator, lots of spare ignition system & engine parts. $20 takes it all! 209-835-2416

Bicycles

2002 Trek 5200 road bike. Ridden once, perfect condition. 52cm OCLV carbon 120 frame, Ultegra components, Rolf Vector Pro wheels. $1700 925-785-2308

Approx. 1965 Mens 5-speed schwinn bicycle $25.00 925-447-1871

Electronic Equipment

GraphTek GP-2005 Pen plotter, large format (B to E size). Lots of pens, paper etc. New condition with stand. Cost over $2,500; will sell for $800. 925-443-2880

Symphonic DVD/CD player with remote. Still in unopened box. $50 925-648-0671

17-inch computer monitor, HP. Excellent condition. $50 925-245-0626

Computer-PentiumIII 192MB RAM, cd-burner, and much more. Linux-Red Hat 9.0 installed. GREAT hobby box 250 obo 925-455-0847

Computer for sale. Athalon 1700+ CPU, 512M RAM, 40 GB HD, 52x CDROM, MB can support RAID 0/1, $360, x29914 or 510-252-9596

Giveaway

FREE!! ALTEC Lansing computer speakers, includes subwoofer. Works Excellent!! 925-373-9224

FREE KITTENS. Very cute. Available mid March. 925-449-9078

Black fixed female indoor cat, looking for a good home. Healthy, lovable and sweet in personality. Good with Children & dogs. 209-892-2369

Boxes of Driftwood pieces and small wooden craft boxes good for school art/craft, organizations craft classes, hobbies, etc. 925-829-8588

FREE!! 6 1/2 ft. metal rack to stack wood. Includes cover. Excellent Condition, U pick up. 925-373-9224

Plush 14x16 ft off-white area carpet and pad. Too big for new house. Some stains from spills. No shoes or pets. 510-338-0237

Fence Posts, light weight T stakes. Also some plant stakes. 925-455-1730

JenAir electric range. Complete with grill and griddle. Works great. 925-455-4849

Household

Couch and loveseat, good condition, green/beige plaid. $100.00/bo. pictures available 209-839-0872

Sofa 3 cushion, blue, very good condition $75 925-443-1172

Low 3 double drawer dresser, oak color, with a matching mirror, good condition, $70 or BO, 925-455-4947

Jenn Air Slide in range with downdraft and grill, griddle module. Good condition. Remodeling. 925-443-1172

Lane Cedar Chest - cushion top w/oak finish. Great condition. $500 new/asking $150 925-245-0626

Series 80 Kenmore electric dryer. 3 yrs old, $175 O.B.O. 40 in. x 60 in. glass table top with chamferred edges and corners, $150 O.B.O. 925-829-2894

Oak Dining Set: 42x64 in.table w/2 12-in. leaves. 6 cane-back chairs w/upholstered seats. Very good condition. $400/OBO. (Photo available). 925-429-0363

Dinette table, 48x36 oval w/12 inch leaf, formica woodgrain pattern. $75. Two matching oak end tables, 22x26 and 26x26, w/rounded corners. $80/both. 925-846-3653

POOL TABLE - Regulation size, balls, rack, two pool cues, brand new, bought for new home and it wont fit in room. $300 lab extension 2-0475 209-551-5261

Sewing Machine Cabinet, Maple Wood, Lots of Storage Space, Excellent Condition, $150 925-447-6819

Moving! HotPt Frig 25cu Almd $400 (ice maker brken) KitchenAid Wash&Dry Almd $400 Thomasville Lv Rm 6ft sofa, 2 swirl Ch, 36in gls cof.tbl $500 408-270-7769

Moving, 7 foot sectional couch, Drexel queen bedroom set, trundel bed, occasional chairs, miscellaneous 925-455-1486

Lost & Found

Lost, 2/24 between B551E/B551W - Black, button down, long sleeve, ladies sweater like shell/top. 925-519-8372

Lost, February 19, 2004, gold pendant with stones. REWARD if found and returned, please call 2-9395. 925-449-5803

Miscellaneous

Tractor, TO-35 Massy Ferg. 4-cyl-diesel, great for 1-5 acre parcels; disc, spring tooth & scraper; all for $2,750 will separate 209-832-2056

LOOM,36 inches Leclerc Nilus.Includes medium warping board & fine steel reed. Excellent condition. $595 OBO Alameda 510-534-8651

Welder: Lincoln TIG 300/300. TIG & Stick. A Workhorse. Excellent Condition. Argon Bottle, Regulator, Chiller, Pedal, Cart and all cabling. $1085 209-996-8852

Heavenly Valley Lift Tickets / Lake Tahoe - Four (4) Albertsons Adult Full Day Lift Tickets @ $52 each ($62 value). Valid through April 20, 2004. 925-447-6423

Diamond Wedding Set - 1/2 carat w/6 smaller diamonds surrounded by 12-diamond band. Beautiful. paid $5000/asking $1500 925-245-0626

Electric golf cart. 1982 EZ-GO. Good condition with new batteries. $600.00 925-820-0679

Firewood logs, pine, 10-20 inches diameter, 6-8 feet, $5-10 each. 209-848-1375

Gazebo, like new,12 foot 6inches by 8 foot 6 inches, sliding door, sliding windows, skylight, payed $5000.00 new, $2500.00 obo 209-852-2015

Fishing rods and reels. Fresh water and salt. Mostly Stripped Bass & Salmon. Stop by to see... 925-449-8435

Camper Dolly/Welded const., 2500# cap., 44in. x 96in. frame. 10in. hvy duty casters, 2 swivel, 2 fixed. $100.00. Hand winch available for $35.00 925-447-1871

Motorcycles

XLarge HJC Motorcycle Helmet, Yellow/Black, Bought last year for $175, will sell for $75. Hardly used, perfect condition. 209-575-2705

1995 - YZ 125. New plastic, fork seals, low miles. Aluminum ramp, stand, gas can. 2000/ offer Used twice Alpine star tech 4 boots, sz 9 $150 Mike 209-368-4286

Large Fieldsheer motorcycle jacket. All black, leather/mesh combo with removable insert. Bought last year for $250 will sell for $100. Hardly used. 209-575-2705

1991 - Suzuki DR350S, 15000 miles,Acerbis tank, Supertrapp, offroad clutch, some extras, new 10.5 AXO boots, pants, belt. $1500 takes all. 925-606-7482

1972 - Honda Trail 90, great condition. Beautiful paint and seat, hi/lo gears, 2 new helmets only 1500 miles. Current CA reg. Perfect 4 camping/cabin $1000 925-683-7795

Pets & Supplies

Black Lab Puppies, AKC registered, first shots, available March 6, $400, 209-854-3418

BEAGLE PUPPIES. AKC registered. Show quality. Parents on site. Females $700. Males $600. Available now. 925-449-9078

Recreation Equipment

Older 8 ft Cab over camper. Everything works, Newer hydraulic jacks, Not bad shape. Must Sell. $200.00 925-454-1478

Wolf tanning bed, very little usage, excellent condition. Paid over $2,400. $1,000. 925-648-0671

Fishing rod and reel combo, Daiwa Millionaire model 4HM high speed. Daiwa graphite rod, strike SK 16C 8 1/2 foot both $50.00 925-447-6099

Ridesharing

Express your commute, call 2-RIDE for more information or visit http://www-r.llnl.gov/tsmp

Oakland/Montclair - Vanpool seeks additional riders. 5/40 schedule: at LLNL 8:15-5:00. Fare depends on # subscribers; $132/mo if one additional. 510-530-1289, ext. 2-9831

Manteca - Carpool on the 9/80 schedule. Call for details. Immidiate opening. 209-825-0326, ext. 3-0631

Modesto Vintage Faire Mall Park-n-Ride - Immediate Openings 1 rider and two standbys, Luxury vanpool, captain seats, reading lights, cellphone 8-4:45 ridership-based fares, 209-544-2236, ext. 3-3194

PATTERSON - Vanpool has seats available for M-F 7:30-4:00 shift. Pre-tax transportation and Guaranteed Ride Home programs available. Fare based on ridership. 209-892-2118, ext. 2-9502

Modesto/Ripon - Van Pool has openings for full time riders. Work hours are 8:00 - 4:30, maybe 4:45 depending on pick-up point. 209-544-6411, ext. 2-2727

Elk Grove - I5 at Laguna to LLNL, 7:00-3:30 shift. Need 1 more in 4-person carpool. Losing 1 person in April. 916-961-0625, ext. 4-4125

Martinez - Martinez carpool looking for a 4th rider/driver. Work hours 7:30-4:30. Call ext. 35933 or 925-228-3759, ext. 3-7857

Services

Farm fresh free range eggs $2.25 per dozen. Can be delivered to your office. 209-239-6016

TUTORING in high school and college chemistry and math. 925-443-2095

Need some additional help for that weekend project. $12/hr (Livermore & Pleasanton only) 925-455-0847

Fun loving daycare right down the street from the Lab references are available. 925-455-5201

Collettes Daycare in Tracy Licence no. 393602105, Infant and up. 1 opening reasonable rates. 15 years exp. in loving environment.call for reference 209-836-4203

Shared Housing

Ripon - Christian woman seeking non-smoker roommate, for quiet home in Ripon. Room $500/mo. + 1/2 utilities. Room available immediately 209-599-7907

Livermore - Room for rent near golf course, $550 incl. util. (no deposit), 6 miles from Lab. Kitchen/laundry privileges. Must love dogs. 925-243-9316

Livermore - furnished room for rent. Clean/quiet. Pool. No pets/no smoking. $550.00/month. Share utilities 1/3. Deposit. Mature adult. 925-449-1128

Livermore - Share Springtown 4 bedroom home, Master bedroom with bath, No Pets, No Smoking, HiSpeed internet available, $660 including utilities. 925-373-4753

Livermore - Master bed/bath in nice apartment complex. 1 mile from LLNL. $690/mo includes utilities. Pool/spa/washer/dryer, full privileges. Available TODAY! 925-525-4999

Pleasanton - room for rent with private bath in Mohr Park. $600 per month + 1/2 utilities. Non-smoker/no pets. 925-485-3510

Trucks & Trailers

1997 - S-10 Pick-up. 4 cyl - 5 speed 172k Freeway miles. Runs Great. Everything works. 10 disc CD + extras. Great on gas. 209-234-1883

1992 - Ford Truck, F150, 5 speed, 4WD, Tow Pkg, tilt wheel, sliding rear window, power window/locks, bedliner, Air, am/fm/cassette, 4.9L, 87K miles $3900. 925-957-1330

1998 - Ford 4x4 Ranger Supercab XLT 4.0L, 55K, 5 speed manual, 55k, Toreador red, Sprayin bed, Leer shell, Draw Tite hitch, 10,500 925-443-1769

2004 - GMC Sierra Truck (new), ABS, AC, hitch, Short Bed, mags, V6, metallic grey, $13,900, 510-252-9596

1977 - 24 foot Midland R.V. w/440 Dodge Engine, New refigerater and septic system. Sleeps 6, Must see to appreciate. $2500.00 OBO 925-449-8435

2002 - Explorer sport White,11,000 miles, PS,PB, 5 speed, CD, outstanding inside and out, like new. +/-20 mpg $14,500 OBO 209-835-2917

1994 - Chevy P/U ext. cab, shell, 4x4, alloy wheels, white w/ grey int. 175K miles, bucket seats. asking 6500.00 OBO 925-443-5008

1972 - Blazer $1500/BO ... needs work 925-449-5018

Vacation Rentals

Snowy mountain cabin near Arnold. 4bedr, 2 bath, fully equipped, wood burning stove. Close to Bear Valley Ski Resort. 925-245-1114

Soooo cute beach cottage in Santa Cruz. 2bedr,2 bath, fully equipped kitchen, spa, 4 blks from ocean. 925-245-1114

Mendocino Coast - - OCEAN VIEW - large 4bd/4.5ba house, 7 miles to Mendocino Village, hottub, quiet, kid friendly, dogs ok, 10% discount to LLNL employees. 925-455-5942

Soda Springs/Donner Summit, Classic A frame 2BR/1BA+Loft, sleeps 8, Walk to Royal Gorge 5 min to Sugar Bowl $250 wknd,$550/week call for availability 209-836-3481

Gualala, Mendocino Co - Whitewater views, ocean hillside 2 bedroom 2 bath. Walking distance to downtown Gualala, Restaurants, Art Galleries. http://coralcove.us $180/night 925-606-1845

SOUTH LAKE TAHOE - 3Bedroom 2 bath Chalet, nicely furnished, all amenities, close to all skiing, RESERVE NOW for OPENINGS!FEW WEEKENDS LEFT! 209-599-4644

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. LLNL rates for year-round reservations. 925-449-0761

Wanted

Need someone willing to watch 2 female mini dachshunds 9 days while owners vacation. Very good girls. 925-449-3499

WANTED: Rolling Frame, Honda 250 Quad or equivalent. Any Year. 925-455-1730

Used twin or full mattress in good cond., computer modem, couch, small kitchen table & chairs, entertainment unit. Need for free or very cheap. 925-449-0463

Aluminum hard hat, preferably with the head suspension gear intact. 408-897-3313

Looking for anyone who wants to get rid of 1967-1979 Chevy/GMC Truck Cheap. Needed for front/rear end parts. Please call in the evening 209-470-1971

Room to rent in Tracy. Young adult. Quiet, neat, responsible. Kitchen privileges a must. 209-834-1801

New or used size 7 or 7.5 cycling shoes for beginning spinner under $50. 925-382-6663

In livermore: Need composted good chicken manure for my vegetable bed.3yards needed.Free or for cost please call 925 422-7097.Can haul. 925-455-1993

Wanted - Donated Bibles (paper back in fair condition) for prison ministry serving the Stanisluas & San Juaqine counties. 209-538-8013

Horse jumps, jump poles, and schooling standards in good or repairable condition.Will pay fair price and will haul. 209-845-9464

Your good used books needed at Buenas Vidas Youth Ranch Thrift Store, 116 North L St., Livermore. Open 7 days. Tax deductible! Thanks! 925-449-7702

Please note:

Services and merchandise listed in *Newsline* are not guaranteed.
It is up to the buyer to scrutinize services purchased.

Due to space limitations, *Newsline* may withhold ads that have already run. They will still appear on the Web.

Frequently asked questions about A&S Restructuring

This week's article focuses on answering the questions and comments received to date. Last week, the first group of Q&As was published. They can be found, along with all the previous A&S Restructuring NewsLine *articles, on the A&S Restructuring Website http://www-r.llnl.gov/ASR.*

As part of the job family matrix finalization and in response to employee comments, changes have been made to some matrices. Please see the accompanying box for a list of the affected matrices and go to the A&S restructuring Website to view them in detail.

The employee comment period ends Tuesday, March 9. Questions and comments may be submitted by accessing the A&S Restructuring Website.

How can a job be accurately slotted if the job family matrix does not describe all the work performed?

The matrices are not detailed job descriptions; therefore, they do not capture every activity every job performs. Section I of the performance appraisal will capture the key, specific activities against which employees are assessed. Jobs will be slotted into the matrices using a "best fit" approach, based on the preponderance of work performed.

Will current classification levels be mapped directly to the corresponding levels in the new job family matrices?

No. There is no intent to directly map over current classification levels to the levels in the new matrices. The new matrices were developed independent of current classification levels and are based on the levels of work performed for each discipline. The new levels may contain job responsibilities that are different than the job responsibilities of the current classification levels.

How will it be determined in which level a job should be slotted?

Jobs will be slotted by first considering the major job responsibilities outlined in the job family matrix, followed by considering the remaining three criteria: qualifications, skills and knowledge; leadership; and accountability. Jobs may have major responsibilities at various levels; however, slotting will be based on the level where the preponderance of work is performed. Employee's jobs will not be placed in a level solely based on an employee's qualifications, skills and knowledge or existing classification level.

How will an employee's pay be affected?

No base salaries will be reduced as a result of this program. Lump sums will be available for employees whose salary is over the top of the new pay range.

When will the pay structures be available?

The new pay structures are currently under development and will be available for employee comment in April.

Will other classified series be restructured?

Plans are in place to review the management positions and the 300, 400 and 500 series. Work will commence in the fall. There are no plans to restructure the step structures.

Why have some of the job family matrices been revised?

Some job family matrices have been revised as part of the job family matrix finalization process and in response to employee comments. A list of revised matrices accompanies this article.

Were representatives from both programmatic and support organizations included in the development of the job family matrices?

Yes. Many of the Job Family Work Teams included employees from both programmatic and support organizations.

Employee comment period

The employee comment period ends Tuesday, March 9. Questions and comments may be submitted by accessing the A&S Restructuring Website at http://www-r.llnl.gov/ASR

Some revisions made to A&S Restructuring Job Family Matrices

As part of the job family matrix finalization, for the Administrative & Specialist Restructuring Project, and in response to employee comments, the following job family matrices have been revised:

General Administrator — Title changed to Administrative Operations; some content changes.

Service Operations Administrator — Title changed to Service Operations Telecommunications Security; some content changes.

Classified and Controlled Information — Some content changes.

Security Training and Awareness — New matrix.

Project Manager — Some content changes.

Archives — Some content changes.

Purchasing — Some content changes.

Library Services – Some content changes.

Additionally, in the "other" category, the list of jobs has been updated and now reflects the job family assignments and the status of the descriptions. A generic "other" matrix has been added to each job family for leveling and slotting.

All the latest updates are available on the A&S Restructuring Website http://www-r.llnl.gov/ASR. Check future *NewsOnLine* and *Newsline* articles for additional updates.

VESSEL

Continued from page 1

angle as well as other diagnostic advantages is really important to the future of explosive tests related to stockpile stewardship," said John Pastrnak, project leader. "We've put a new spin on containment vessels for explosive experiments."

Indeed, the composite over-wrap of Kevlar, PBO and/or carbon fiber give the lemon-shaped vessel the appearance of a giant string or rubber band ball.

The development of a full-size 2 meter vessel has been a joint project with Los Alamos National Laboratory (LANL), home to the state-of-the-art Dual Axis Radiographic Hydrotest Facility or DARHT. LANL may house the next generation Advanced Hydrotest Facility — experimental facilities likely to use the newly designed vessels.

Traditional explosive test vessel design, using steel or other metals, can limit scientists' ability to measure, radiographically photograph and otherwise analyze or "diagnose" explosive experiments, according to Pastrnak. In the past, ports or low density windows had to be made in the vessels for conventional X-ray radiography. Such ports and windows are vulnerable to exploding metal fragments.

JACQUELINE MCBRIDE/NEWSLINE

Left to right, standing, Bill Morgan, Edward Dalder, Rocky Hollaway, Steve DeTeresa, Edwin Kokko, Lisle Hagler. Left to right, seated, Walter Grundler, Carl Henning, John Pastrnak and Vern Switzer.

Composite material is wrapped on vessel.

The new vessel under development is made using composite materials and innovative design. Low-density continuous aramid fibers with trade names such as Kevlar and Zylon make up the outer shell, which provides the primary structural resistance against the blast forces. An aluminum liner underneath it is used as a sealing surface and doubles as the winding mandrel for the composite filaments.

Kevlar is one of the materials used to make bulletproof vests and shields according to the polymer scientist team member Steve Deteresa.

"This design offers the advantages of being stronger than steel and allows radiography of the dynamic experiment right through the vessel wall. No ports are necessary," Pastrnak said.

One major application for this vessel would be the innermost containment in the proposed Advanced Hydrotesting Facility (AHF) where the planned radiography is with 50 GeV protons and up to 12 lines of sight. "Scientists are under more pressure to do their experiments more efficiently and that translates into increasing the information obtained from each," he said. The goal of a full-size 2-meter diameter windowless firing vessel is directed for complete containment of up to 80-lb TNT equivalent cased explosive. Currently the only "vessel" able to contain this amount of explosive would be the very large, reinforced concrete chamber in Site 300's Contained Firing Facility (CFF), though no tests using nuclear materials are ever conducted at CFF.

The new windowless, portable, vessel design allows for multiple radiographic lines of sight without changing the structural design of the vessel when experimenters need additional lines of sight for X-ray or proton imaging. The lack of low-density radiography ports also means that ceramic tile fragmentation shielding can be applied uniformly to better insure that experiment fragments don't compromise the more vulnerable conventional X-ray windows.

A technical challenge the team had to overcome was sealing the steel plugs at each end of the vessel. With internal blast pressures in excess of 40,000 psi, seven seals were used to guard against leakage. Another challenge was the conventional welding of the aluminum liner, which proved to be inadequate on an earlier test. Instead, engineers with the help of Boeing Aerospace tried a new welding process called friction stir welding — a solid phase joining process that does not require filler material, with the benefit of essentially no porosity or post-weld cracking.

"This state-of-the-art process is being adopted by the aerospace industry where weld defects tend to have severe consequences," Pastrnak said.

Another challenge was finding a way to neutralize the effects of the electromagnetic pulse and charged plasma cloud generated by the explosion bouncing around inside the confines of the vessel. This interference or "noise" can corrupt measurements, notably measurements of the structural integrity of the vessel.

Engineers Jim Morrison and Brian Hathcoat used special noise canceling circuits and a kind of internal lightning rod to protect monitoring sensors and improve measurements. Also playing a key role in the development of the vessel is the availability of state-of-the-art computational codes used to model the blast as well as the structural response of the vessel.

This composite vessel design will likely find additional applications, Pastrnak said, such as containing experiments with nuclear or other hazardous materials. It could also handle transporting sensitive explosives that could only otherwise be moved in very small quantities or as highly portable, explosive containment systems for law enforcement.

Larry Wiley of B-Division said that over the last 15 years the worldwide trend for explosives testing has been in the direction of replacing open-air detonations with containment vessels, especially when any hazardous materials are involved.

"Development of this composite vessel is a big step toward a future of contained explosives testing and is important to the future of stockpile stewardship," Wiley said. "New structural materials make possible a design that overcomes the limitations of previous vessels."

"This project reflects what this Laboratory has collectively always done best," said Pastrnak. "The willingness to take a chance on an innovative concept and to quickly assemble a diverse team to develop it. The progressive thinking that made this effort possible could only have come from such a collective effort."

STARS

Continued from page 1

The adaptive optics system enables astronomers to minimize the blurring effects of the Earth's atmosphere, producing images with unprecedented detail and resolution. The adaptive optics system uses light from a relatively bright star to measure the atmospheric distortions and to correct for them, but only about 1 percent of the sky contains stars sufficiently bright to be of use. The laser guide star enables astronomers to study nearly the entire sky with the high resolution of adaptive optics.

"Lasers have been developed into powerful tools for everything from surgery to machining," said Claire Max, deputy director of the Center for Adaptive Optics (CfAO) and an astrophysicist with LLNL's Institute of Geophysics and Planetary Physics. "Now, we are using lasers to observe young stars just after they have formed from their surrounding gas clouds."

Herbig Ae/Be stars are young stars with masses between 1.5 and 10 times that of the sun and are less than 10 million years old, which is young by astronomical standards. While they are fundamentally very luminous, many are so distant that one can't see details of their immediate environments without the use of a laser guide star adaptive optics system. These stars are thought to be the young stage of the massive stars that later experience supernova explosions and trigger star formation in nearby clouds.

Adaptive optics refers to the ability to compensate or adapt to turbulence in the Earth's atmosphere, removing the blurring of starlight. Adaptive optics systems measure the distortions of the light from a star and then remove the distortions by bouncing the light off a deformable mirror that corrects the image several hundred times per second.

The only laser guide star systems in the world currently being used regularly for astronomy are the at Lick and W.M. Keck observatories, and were built by LLNL. The sodium dye laser, under the direction of LLNL laser scientists Deanna Pennington and Herbert Friedman, completes the adaptive optics system mounted to Lick's Shane telescope. It is operated by Lick staff.

The observations and development of the laser guide star were funded by the National Science Foundation and the Department of Energy.

ALBERTO

Continued from page 1

provided in next week's *Newsline.*

A key organizer of CGSR's annual "Futures" workshops and conferences, Alberto was well known to those who attended including many in the international community. She's remembered as a "sunny personality," lively, gracious, hardworking and professional.

"We've all been in shock this week," said Eileen Vergino, deputy director of CGSR. "Tributes to Tami from around the world have poured into CGSR this week from those who knew her."

Alberto was a passenger on a Harley Davidson when the driver lost control of the motorcycle on northbound I. 680 near Highway 4, according to the California Highway Patrol. The driver was treated for minor injuries and released from the hospital.

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